Reply to Dakin et al.

G. Rainer, M. Augath, T. Trinath and N. K. Logothetis

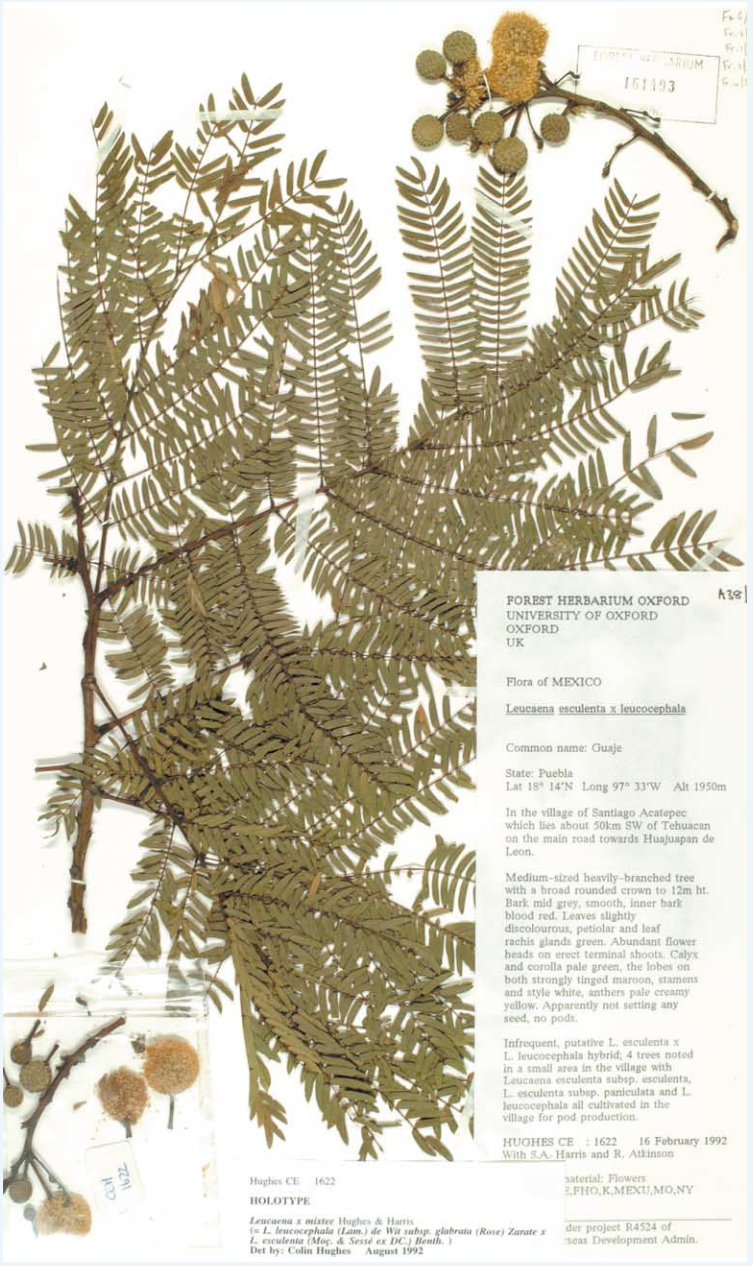
Steven Dakin and colleagues present a detailed analysis of the stimuli used in our study [1] revealing that our method of interpolation is associated with certain changes in the statistical properties of interpolated images. They argue that these changes might represent a possible source of the BOLD signal non-monotonicity that we observed in the primary visual cortex (V1). This finding is interesting, but we'd like to clarify the following point: the main finding of our study, namely the dissociation between non-monotonic V1 BOLD signal [1] and monotonic psychophysical performance [2], is in no way affected by this. In addition, our model showed that Gabor responses are sparser for natural images than for pure noise, suggesting that cortical 'trade-off' may actually play a role in the experimentally observed effects. However, we agree with Dakin and colleagues that statistical properties associated with interpolation may have indeed contributed to the BOLD non-monotonicity. We note with interest that phase-only kurtosis appears to show characteristics broadly consistent with V1 BOLD. If this turns out to be true in general, it would provide even stronger evidence for a dissociation between perception and V1 BOLD levels. Future experimental work is needed to address these issues, testing both the generality of the correlation between V1 BOLD levels and phase-only kurtosis, as well as BOLD monotonicity for other interpolation methods such as WMP interpolation suggested by Dakin and colleagues. Testing such hypotheses generated by quantitative techniques is likely to lead to further advances in our understanding of the BOLD signal and its relation to behavior.

References

1. Rainer, G. *et al.* (2001). Nonmonotonic noise tuning of BOLD fMRI signal to natural images in the visual cortex of the anesthetized monkey. Curr. Biol. *11*, 846–854.
2. Rainer, G. and Logothetis, N.K. (2001). Society for Neuroscience Abstracts *27*, 399.1

Herbarium turns a new leaf

A major refurbishment of part of one of the world's oldest plant collections has recently been completed, providing unprecedented access for researchers. The Daubeny Herbarium, part of Oxford University's botanical collections which were established in 1621 and comprise a total of some 800,000 specimens, focuses on tree material which began being collected early in the last century. With funds from the Gatsby Charitable Foundation and the UK government's Science Research Infrastructure Fund, the herbarium has now been overhauled, allowing access to an array of specimens from around the world, many of which are increasingly under threat in their natural environments.



Rich pickings: A specimen of a Mexican tree legume hybrid (*Leucaena x mixtec)* in the refurbished Daulbeny Herbarium in Oxford. (Photo: the Daulbeny Herbarium)